

# Notice of Allowability

Application No.

10/087,735

Examiner

John S. Chu

Applicant(s)

NAGAI ET AL.

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/21/04.
2. ☒ The allowed claim(s) is/are 2-23.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

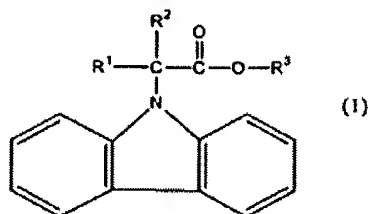
### EXAMINER'S AMENDMENT/REASONS FOR ALLOWANCE

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Chris Raimond on August 31, 2004.

The application has been amended as follows:

Claim 21, line 2 insert the following formula --



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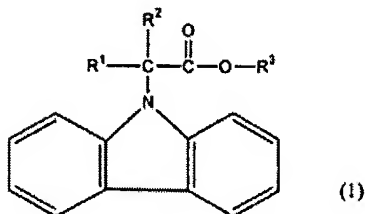
This insertion reinserts the formula inadvertently omitted from the claims in the amendment submitted August 25, 2004.

### REASONS FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance: The claimed invention is drawn to the following:

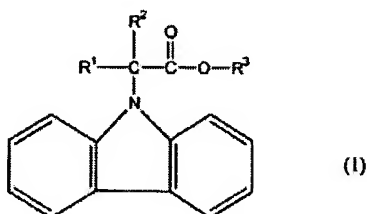
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2. (Previously Presented) A carbazole derivative of the following formula (1),




wherein  $R^1$  and  $R^2$  in the formula (1) independently represent a linear, branched, or cyclic alkyl group having 1-12 carbon atoms, an aromatic hydrocarbon group having 6-20 carbon atoms, an oxygen-containing organic group, or a nitrogen-containing organic group, and wherein  $R^3$  represents a hydrogen atom or a monovalent organic group.

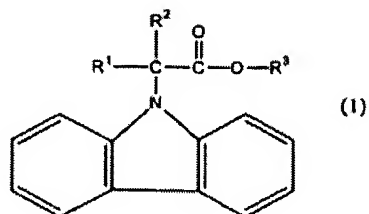
6. (Currently Amended) A carbazole derivative of the following formula (1),




wherein  $R^1$  and  $R^2$  individually represent a hydrogen atom or a monovalent organic group, or  $R^1$  and  $R^2$  form, together with the carbon atom to which  $R^1$  and  $R^2$  bond, a divalent organic group having a 3-8 member carbocyclic structure or a 3-8 member heterocyclic structure, and wherein  $R^3$  in the formula (1) is an i-propyl group, t-butyl group, or a cyclohexyl group[.] or benzyl group.

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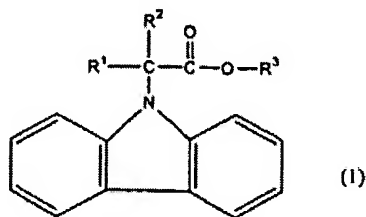
21. (New)  carbazole derivative of the following formula (1),



wherein  $R^1$  represents a hydrogen atom or a monovalent organic group and  $R^2$  represents a monovalent organic group, or  $R^1$  and  $R^2$  form, together with the carbon atom to which  $R^1$  and  $R^2$  bond, a divalent organic group having a 3-8 member carbocyclic structure or a 3-8 member heterocyclic structure with the proviso that when  $R^1$  represents a hydrogen atom,  $R^2$  is selected from the group consisting of an ethyl group, an n-propyl group, an i-propyl group, an n-butyl group, a 2-methylpropyl group, a 1-methylpropyl group, a t-butyl group, a phenyl group, and a benzyl group, and wherein  $R^3$  in the formula (1) is an i-propyl group, t-butyl group, cyclohexyl group, or benzyl group.

10. (Previous  Presented) A positive tone radiation-sensitive resin composition comprising (A) a carbazole derivative of the following formula (1),

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wherein R<sup>1</sup> and R<sup>2</sup> individually represent a hydrogen atom or a monovalent organic group, or R<sup>1</sup> and R<sup>2</sup> form, together with the carbon atom to which R<sup>1</sup> and R<sup>2</sup> bond, a divalent organic group having a 3-8 member carbocyclic structure or a 3-8 member heterocyclic structure, and R<sup>3</sup> represents a hydrogen atom or a monovalent organic group, (B) an acid-dissociable group-containing resin which is insoluble or scarcely soluble in alkali, but becomes alkali soluble when the acid-dissociable group dissociates, and (C) a photoacid generator.

The claimed invention is to the particularly claimed carbazole compound and its presence in a chemically amplified radiation sensitive resin composition and in a positive tone radiation-sensitive resin composition. The closest prior art reference of record is to Shukla, Y.K.

“Synthesis Of Some New Aryl α-(3)Substituted-Carbazol-9-YL) Acetates/Propionates As Possible Anti-inflammatory And Analgesic Agents”, Indian J. Chem., 33B:799-802 (1994) (SHUKLA ), wherein a carbazole compound is disclosed. Applicants have amended the claims to the carbazole compound by removing the limitation that R<sup>3</sup> is no longer a benzyl group. The claims are further drawn to a chemically amplified radiation sensitive resin composition and a positive tone radiation sensitive composition comprising said carbazole compound.

Further none of the prior art references disclose or suggest the particularly claimed carbazole compound or its presence in a chemically amplified radiation sensitive composition or

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in a positive tone radiation sensitive composition used for microfabrication of integrated circuit devices.

Because none of the prior art references disclose the claimed invention to the carbazole compound or the radiation sensitive resin compositions, claims 2-23 are seen as allowable and passed to issue.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

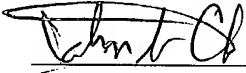
The fax phone number for the USPTO is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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John S. Chu  
Primary Examiner, Group 1700

J.Chu  
August 31, 2004